H1N1 Where We Are, Where is it Going?

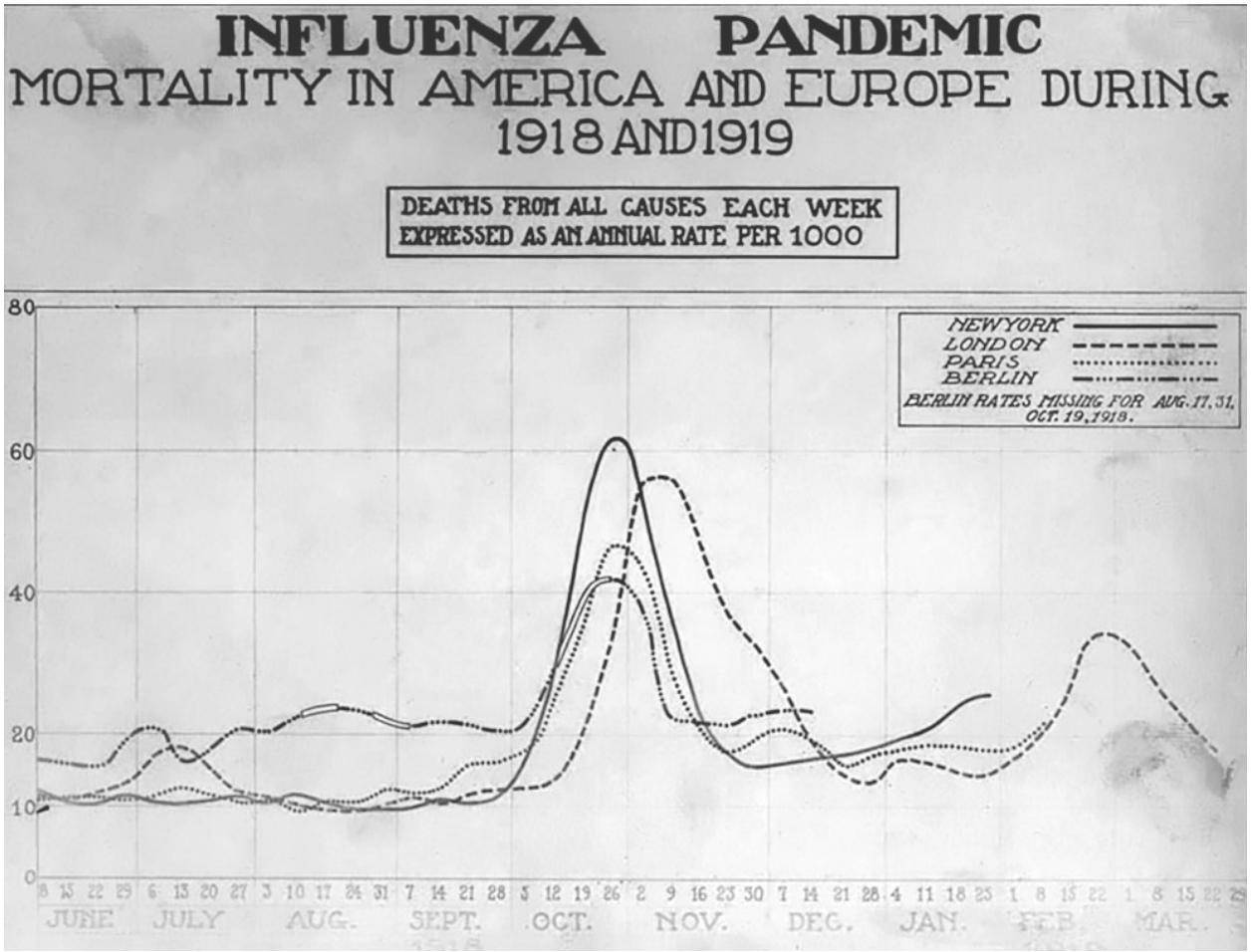
LT Loren Nedelman, NC, USN

Disclosure

- Neither I nor any member of my family has a financial relationship or interest with any proprietary entity producing health care goods or services related to the content of this CME activity.
- My content will not include any discussion or reference of any commercial products or services.
- I do not intend to discuss an unapproved or investigational use of commercial products or services.

H1N1 “Swine Flu”

1918 Influenza Pandemic(H1N1)



Pandemic Influenza: The Inside Story. Nicholls H, PLoS Biology Vol. 4/2/2006, e50 http://dx.doi.org/10.137

Recreating the 1918 Virus

Tissue samples from frozen victims were used to reproduce the virus for study. Among the conclusions of this research is that the virus kills via a cytokine storm which perhaps explains its unusually severe nature and the concentrated age profile of its victims. The strong immune systems of young adults ravaged the body, whereas the weaker immune systems of children and middle-aged adults caused fewer deaths.

Center for Disease Control: Researchers Reconstruct 1918 Pandemic Influenza Virus; Effort Designed to Advance Preparedness Retrieved 04Apr10.

Ft. Dix H1N1 Outbreak 1976

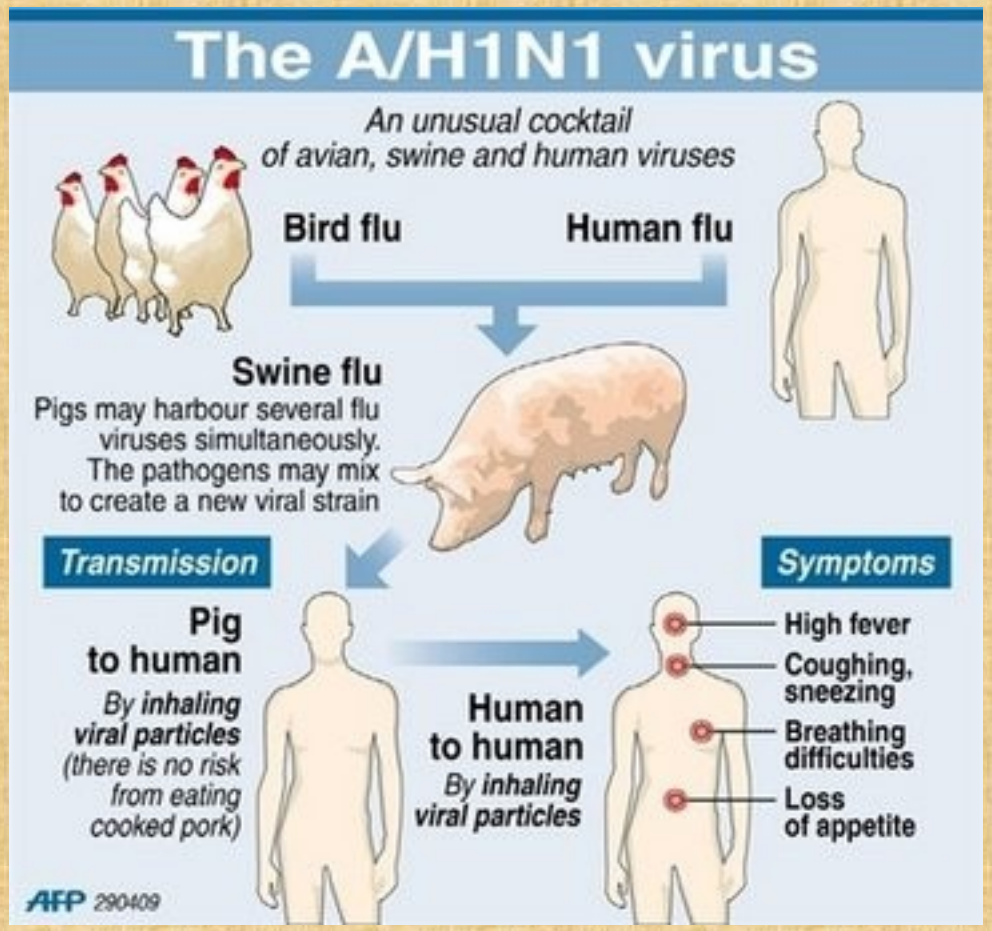
In early 1976, the novel A/New Jersey/76 (Hsw1N1) influenza virus caused severe respiratory illness in 13 soldiers with 1 death at Fort Dix, New Jersey. Since A/New Jersey was similar to the 1918–1919 pandemic virus, rapid outbreak assessment and enhanced surveillance were initiated. A/New Jersey virus was detected only from January 19 to February 9 and did not spread beyond Fort Dix. A/Victoria/75 (H3N2) spread simultaneously, also caused illness, and persisted until March. Up to 230 soldiers were infected with the A/New Jersey virus.

Gaydos JC, Top FH, Hodder RA, Russell PK. Swine influenza A outbreak, Fort Dix, New Jersey, 1976. Emerg Infect Dis. 2006 Jan [*01Apr10*]. Available from http://www.cdc.gov/ncidod/EID/vol12no01/05-0965.htm

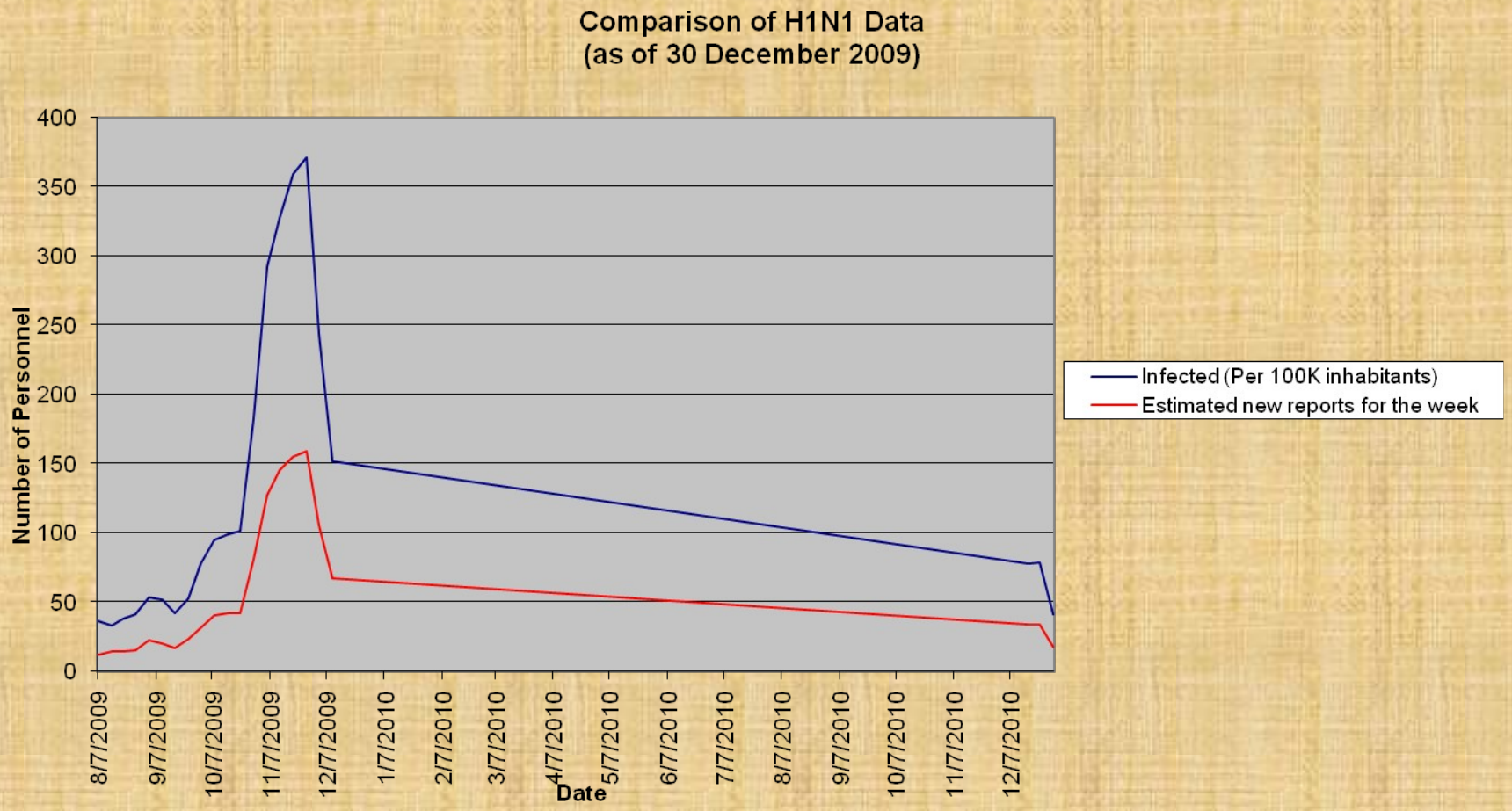
2009 Swine Flu

- In mid March 2009, an unknown virus began spreading in Mexico, and by late April, cases of the H1N1 virus — commonly called the Swine Flu — had been confirmed in the U.S., Canada, Spain and the United Kingdom; on June 11, the World Health Organization declared a new pandemic as a result of the global spread of the H1N1 virus. Unlike the garden-variety influenza virus, this strain can infect more than one species. Birds, swine and humans are all at risk for infection. While the alert status of H1N1 was high in the U.S. in 2009, the number of confirmed related deaths remained relatively low. It is estimated that at least 10,000 people worldwide died from the H1N1 virus in 2009 while most seasonal strains kill roughly 250,000 to 500,000 every year.

Transmission


The A/H1N1 virus
An unusual cocktail of avian, swine and human viruses
Bird flu
Human flu
Swine flu
Pigs may harbour several flu viruses simultaneously. The pathogens may mix to create a new viral strain
Transmission
Pig to human
By inhaling viral particles (there is no risk from eating cooked pork)
Human to human
By inhaling viral particles
Symptoms
High fever
Coughing, sneezing
Breathing difficulties
Loss of appetite
AFP 290409

Spanish Ministry of Health H1N1 Report



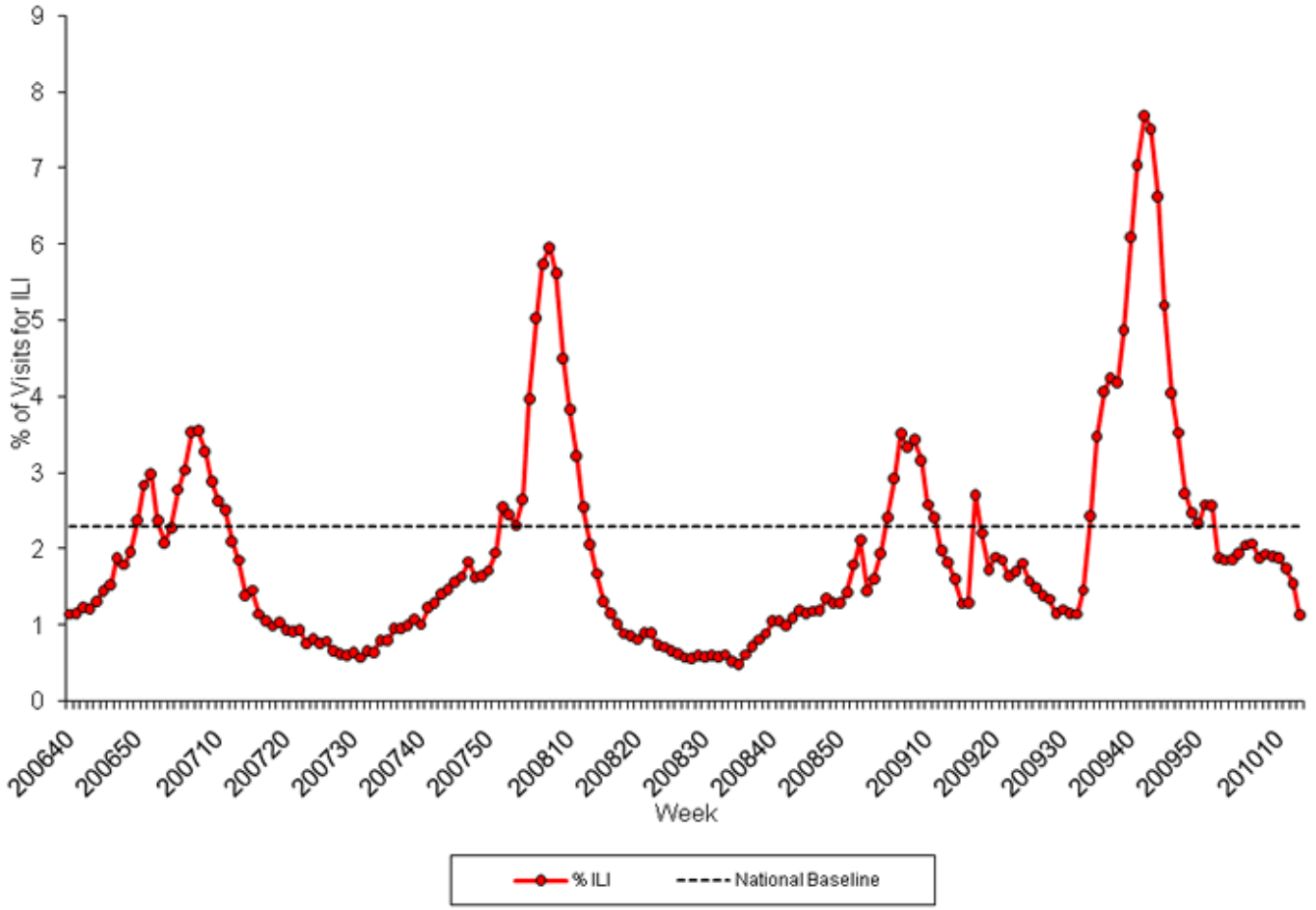
Where it is Going as of 01Apr10

- Health officials are reminding Americans that the H1N1 flu is still around and causing serious illness, particularly in the Southeast.
- Three states -- Alabama, Georgia and South Carolina -- are reporting "regional" flu activity, according to the Centers for Disease Control and Prevention in Atlanta. Puerto Rico and eight other states -- Arkansas, Louisiana, Mississippi, North Carolina, Tennessee, Virginia, Hawaii and New Mexico -- are reporting "local" flu activity.

Where it is Going

- According to the CDC , so far, an estimated 60 million Americans have been infected with H1N1, 265,000 have been hospitalized and 12,000 have died from the virus.
- In contrast over 50 million worldwide died for the 1918 Pandemic Influenza.

Percentage of Visits for Influenza-like Illness (ILI) Reported by the U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet), National Summary 2008-2009



Laboratory Confirmed Influenza-Associated Hospitalizations and Deaths in the U.S. from August 30 2009 to April 3, 2010

Cases Defined By	Hospitalizations	Deaths
Influenza Laboratory-Tests**	**41,821**	**2,117**

**States report weekly to CDC either 1) laboratory-confirmed influenza hospitalizations and deaths or 2) pneumonia and influenza syndrome-based cases of hospitalization and death resulting from all types or subtypes of influenza. Although only the laboratory confirmed cases are included in this report, CDC continues to analyze data both from laboratory confirmed and syndromic hospitalizations and deaths.

Data reported by CDC 06Apr10

U.S. Influenza-associated Pediatric Mortality

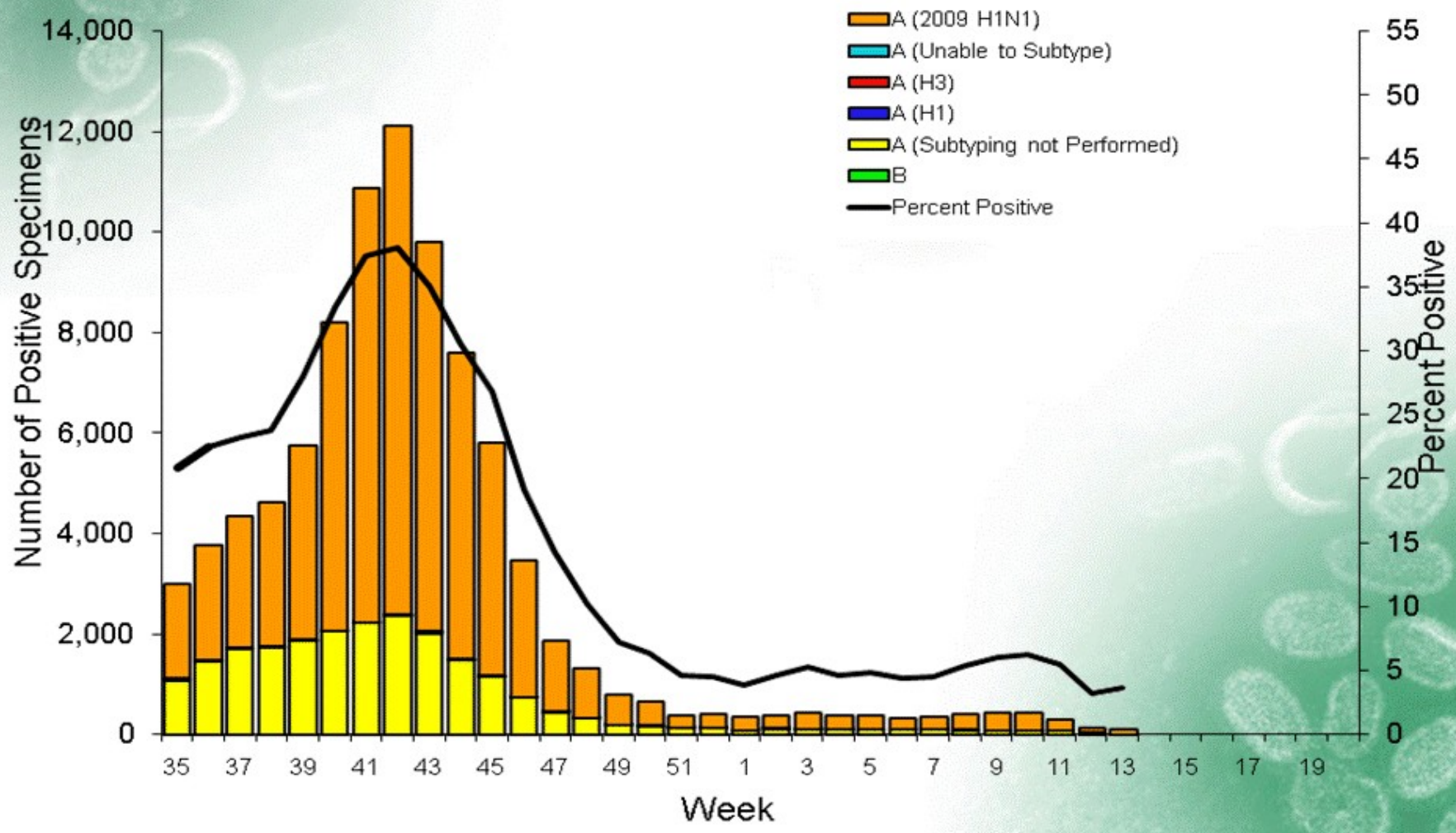
Date Reported	Laboratory-Confirmed 2009 H1N1 Influenza Pediatric Deaths	Laboratory-Confirmed Influenza A Subtype Unknown Pediatric Deaths	Laboratory-Confirmed Seasonal Influenza	Total
This Week (Week 13, March 28 - April 3, 2010)	0	1	0	1
Since August 30, 2009	220	49	1	270
Cumulative since April 26, 2009	280	52	2	334

This table is based on data reported to CDC through the Influenza-Associated Pediatric Mortality Surveillance System. Influenza-associated deaths in children (persons less than 18 years) was added as nationally notifiable condition in 2004.

FLUVIEW

A Weekly Influenza Surveillance Report Prepared by the Influenza Division

Influenza Positive Tests Reported to CDC by U.S. WHO/NREVSS Collaborating Laboratories, National Summary, 2009-10



WHO Reported H1N1 Deaths

Region	Deaths
WHO Regional Office for (AFRO)	167
WHO Regional Office for the (AMRO)	At least 8175
WHO Regional Office for the (EMRO)	1019
WHO Regional Office for (EURO)	At least 4669
WHO Regional Office for (SEARO)	1726
WHO Regional Office for the Western Pacific (WPRO)	1727
Total	At least 17483

E.U. Countries reporting community incidence in Week 12/2010

Rising trend	Stable		Declining trend
	Austria	Malta	Bulgaria
	Belgium	Netherlands	Estonia
	Czech Republic	Poland	Greece
	Denmark	Portugal	Hungary
	France	Slovakia	Latvia
	Germany	Slovenia	Romania
	Ireland	Spain	UK- Northern Ireland & Wales
	Lithuania	Sweden	
	Luxembourg	UK- England & Scotland	

Source: ECDC Weekly influenza surveillance overview, 1 April

Thinking Outside the Box

Social Distancing

During the peak of the 1918 influenza pandemic, US Navy medical facilities, and at naval stations throughout the world, one could read the Bureau of Medicine and Surgery “Circular 1” which said:

“For the protection of others, if you are really sick stay at home and remain there until the fever is over. A day in bed at the very beginning may also save you from serious consequences. . .

If you are up and about, protect healthy persons from infection—don’t spray others with the secretions from your nose and throat in coughing, sneezing, laughing, or talking. Cover your mouth with a handkerchief. Boil your handkerchiefs and other contaminated articles. Wash your hands frequently. Keep away from others as much as possible while you have a cough.”

Photo # NH 103264 Boxing match on USS Siboney

Boxing Bout on Fo'c'le
"Influenza Masks in Use"

Regional Coordination

- Most Health and Medical Services are not delivered within defined geographical or jurisdictional boundaries.
- Patients/victims/citizens will seek information and services from a variety of sources (e.g. local/state, public/private)
- Emergency Public Information needs to be coordinated
- Media reaches across many geographical boundaries.

Postal Plan: 48 hours

- Postal workers distribute in MSP area
- Postal worker/security officer deliver bottle of pills and one page of instructions to every household
- Primarily for an anthrax attack
- Required pre-deployed antibiotics for postal worker and household; fit testing for N-95 respirator for postal worker (and lots of federal negotiating)
- Exercise spring, 2010
- Faster, fewer staff
- One of many types of distribution

Surveillance and Pre-Planning

- Surveillance of likely sources is essential, especially close contacts such as in the unique basic training environment , or prisons.
- The development of outbreak investigation plans, collaboration in field and laboratory work, and exchange of information is essential in combating the outbreak and even heading it off before it can infest.

Composition of the 2010-11 Influenza Vaccine:

- WHO has recommended vaccine strains for the 2010-11 Northern Hemisphere trivalent influenza vaccine, and FDA has made the same recommendations for the U.S. influenza vaccine. Both agencies recommend that the vaccine contain A/California/7/2009-like (2009 H1N1), A/Perth/16/2009-like (H3N2), and B/Brisbane/60/2008-like (B/Victoria lineage) viruses. A seasonal influenza A (H1N1) component is not included in the 2010-11 formulation, and the A (H3N2) component has been changed from the 2009-10 Northern Hemisphere vaccine formulation.

Questions?